

## Ch. 9 Cheat Sheet

### 1) Confidence Intervals:

\* Check Conditions

$$\hat{p} \pm Z^* \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} = (a, b)$$

\* We are \_\_\_\_% confident that the true percent of \_\_\_\_\_ is between a and b.

### 2) Finding the sample size:

$$m = Z^* \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

Calculator:

1-  $(m/Z)^2$

2-  $(\hat{p} * 1 - \hat{p}) / \text{Ans}$

3- Round up!

Note: If no  $\hat{p}$ , use 0.50

### 3) Hypothesis Tests (aka Tests of Significance)

\* Check Conditions

\* Hypotheses: Ho:  $p = \underline{\hspace{1cm}}$ %  
Ha:  $p >, <, \neq \underline{\hspace{1cm}}\%$

\* Test Statistic:

$$Z = \frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}}$$

\* P-Value:  $P(Z \geq \text{test statistic}) = \text{normalcdf}(\text{LB}, \text{UB}, 0, 1)$   
= #

If Z is negative, use <

If Z is positive, use >

If there is a Ha:  $\neq$ , then do  $2 * P(\ )$

\* Conclusion:

If  $p\text{-value} < \alpha$ , then reject Ho

We reject Ho b/c  $p\text{-value}$  of \_\_\_\_\_  $< \alpha = \underline{\hspace{1cm}}$ .  
We have sufficient evidence that the true percent of \_\_\_\_\_

is ... (Ha)

If  $p\text{-value} > \alpha$ , then DO NOT reject Ho

We do not reject Ho b/c  $p\text{-value}$  of \_\_\_\_\_  $> \alpha = \underline{\hspace{1cm}}$ .  
We do not have sufficient evidence that the true percent of \_\_\_\_\_ is ... (Ha)

CONDITIONS:

1) SRS

2)  $n > 30$

3) population  $> 10 * n$

3) There are more than  $(10 * n)$  things.

If  $\uparrow$  Conf level ....

If  $\uparrow$  n .....

① (0.50, 0.60)

a)  $m =$

b)  $\hat{p} =$

What does 95% conf. mean?  
In repeated samples ...